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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,341	02/07/2002	Hubert Barth	6386-08-IM	3756

7590 10/29/2003

Charles W Ashbrook  
Warner-Lambet Company  
2800 Plymouth Road  
Ann Arbor, MI 48105

EXAMINER

SHIAO, REI TSANG

ART UNIT	PAPER NUMBER
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1626

DATE MAILED: 10/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/889,341	<b>Applicant(s)</b> BARTH ET AL.	
	<b>Examiner</b> Robert Shiao	<b>Art Unit</b> 1626	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1003</u> . | 6) <input type="checkbox"/> Other: _____.                                   |

### DETAILED ACTION

1. This application claims benefit of the foreign application:  
Germany 19914610.1 with a filing date March 30, 1999.
2. Amendment of claims 3-5, addition of claims 6-8, and cancellation of claims 1-2 in Paper No. 0903, dated September 5, 2003, is acknowledged. No new matter is found. Claims 3-8 are pending in the application.

### ***Responses to Election/Restrictions***

3. Applicant's election with traverse of Group VIII claims 2-5 in Paper No. 0903, dated September 5, 2003 is acknowledged. Since the pending claims 3-8 are commensurate with the scope of original claims 2-5, therefore, claims 3-8 are prosecuted in the case. Applicants further elected the compound of formula I, wherein the variable HETN is indole, as the single disclosed species. The traversal is on the grounds that: (1) the instant processes include shared "special technical features"; (2) since the specific reactants aromatic azaheterocycles is recited, therefore, it would not pose a serious search burden on the Patent Office. This is not found persuasive and the reasons are given, *infra*.

The Examiner disagrees. In the Office Action dated July 29, 2003 (Paper No. 0703), the Examiner indicated what was considered the special technical feature, the variable HETN of the formula I of the processed products. At the most, the special technical feature would be an azaheterocycles. However, azaheterocycles is not considered when ascertaining the special technical feature. This recognized chemical

diversity of the variable azaheterocycles can be seen by the various classifications of these functional groups in the U.S. classification system, i.e., class 548 subclass 469 (+) (indole), class 548 subclass 560(+) (pyrrole), class 548 subclass 427(+) (carbazole), class 548 subclass 262.2(+) ([1,2,4] triazole). Therefore the claimed processes of making of Groups I -VIII do not share a common utility or a substantial structural feature.

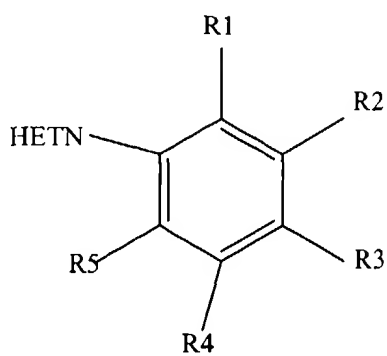
The inventions Group I-VIII are independent and distinct because there is no patentable co-action between the groups and a reference anticipating one member will not render another obvious. Each group is directed to art recognized divergent subject matter which requires different searching strategies for each group. Moreover, the examiner must perform a commercial database search on the subject matter of each group in addition to a paper search, which is quite burdensome to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

#### ***Status of the Claims***

4. Claims 3-8 are pending in the application. The scope of the invention of the elected subject matter is as follows:

A process of making a compound formula I of claim 6, and this compound is found in the pages 2-3 and 9- 16 of the instant application,



wherein the variable indol-1-yl, pyrrol-1-yl or imidazol-1-yl;  
R1, R2, R3, R4, and R5 are as defined in claim 6; the process comprising:  
reacting an aromatic aza-heterocycle with a compound of formula XIV, at a temperature  
between room temperature and about 80°C, and in the presence of cesium carbonate  
and one or more solvent; wherein the aromatic aza-heterocycle is an indole, a pyrrole,  
or an imidazole.

As a result of the election of the elected subject matter identified, claims  
3-8 embraced by above elected subject matter, are prosecuted in the case, claims 3-8,  
in part, not embraced by above elected subject matter, are withdrawn from further  
consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention.  
The withdrawn subject matter of claims 3-8, in part, is properly restricted as it differs  
materially in structure and in element from the elected subject matter supra so as to be  
patentably distinct there from, i.e., the fields of search are not co-extensive.

The above mentioned withdrawn compounds which are withdrawn from  
consideration as being for non-elected subject matter differ materially in structure and  
composition from the compounds of the elected invention. The withdrawn compounds

contain varying functional groups or products which differ from those of the elected invention such as indole, pyrrole, imidazole, carbazole, [1,2,4] triazole, etc, which are chemically recognized to differ in structure and function. This recognized chemical diversity of the functional groups can be seen by the various classification of these functional groups in the U.S. classification system, i.e., class 548 subclass 469 (+) (indole), class 548 subclass 560(+) (pyrrole), class 548 subclass 427(+) (carbazole), class 548 subclass 262.2(+) ([1,2,4] triazole), etc.

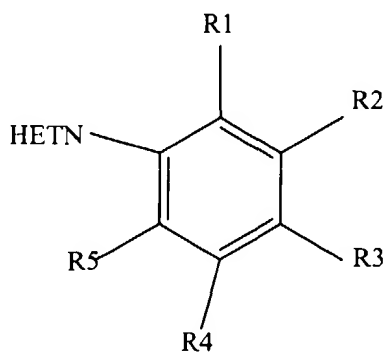
### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartwig et al. 5,977,361. It is noted that Hartwig et al. '361 is a 102(e) reference.

Applicants claim a process of making a compound of formula I,



wherein the variable HETN of formula I represents indol-1-yl, pyrrol-1-yl or imidazol-1-yl; R1, R2, R3, R4, and R5 are as defined in claim 6; the process comprising: reacting an aromatic aza-heterocycle with a compound of formula XIV, at a temperature between room temperature and about 80°C, and in the presence of cesium carbonate and one or more solvent; wherein the aromatic aza-heterocycle is an indole, a pyrrole, or an imidazole. The process is found in the pages 2-3 and 9- 16 of the instant application.

**Determination of the scope and content of the prior art (MPEP §2141.01).**

Hartwig et al. disclose a process of making a N-aryl azole, which comprises reacting an azole compound with an arylating compound (i.e., formula II) in the presence of base and solvent, see columns 3-5. The azole compounds have been specifically exemplified, such as indole, pyrrole, imidazole, and benzimidazole, see column 4, lines 63-65. The bases used for the reaction include metal carbonates, such as cesium carbonate, see column 5, lines 22-26. The solvent used for the processes has been disclosed in the column 9, lines 33-49. A number of working examples have been exemplified, see column 10, lines 25-67, and Table 1 of columns 11-12. Especially a working example using azole indole has been disclosed in the Example 6, see Example 6 of Table I.

**Determination of the difference between the prior art and the claims (MPEP §2141.02)**

The difference between the instant processes and Hartwig et al. is that the reaction conditions is different. The reaction temperature of Hartwig et al. is in the range of 100-120<sup>0</sup> C and in the presence of catalyst, while the reaction temperature of instant processes is between room temperature and about 80<sup>0</sup> C.

**Finding of prima facie obviousness-rational and motivation (MPEP §2142-2143)**

One having ordinary skill in the art would find the instant claims prima facie obvious **because** one would be motivated to employ the teaching of Hartwig et al. to obtain a process of preparing a compound of formula I, wherein the variable HETN is an indol-1-yl, a pyrrol-1-yl, or imidazol-1-yl and optimize reaction conditions (i.e., temperature), which is the claimed processes.

The Courts have decided per *In re Boesch*, 205 USPQ 215 (1980), that the optimization of variables, such as pH and temperature, in a known process (i.e., Hartwig et al.) is prima facie obvious. Therefore, the claimed process would have been suggested to one skilled in the art.

***Objection***

6. Claims 3-8 are objected to as containing non-elected subject matter. It is suggested that applicants amend the claims to the scope of the elected subject matter as defined on pages 3-4 *supra*.



7. Claim 6 is objected. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Misnumbered claim 6 has been renumbered claim 3.

8. Claims 3-5 are objected. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim. A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n). Renumbering of claim 3-5 (i.e., claims 4-6) would obviate the objection.


9. The term "Summary" for the abstract is objected. Incorporation of the term "Abstract" would obviate the objection.

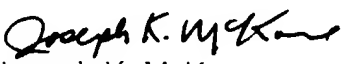
***Telephone Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Shiao whose telephone number is (703) 308-4002. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on (703) 308-4537. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3014 for regular communications and (703) 305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
Robert Shiao, Ph.D.  
Patent Examiner  
Art Unit 1626

  
Joseph K. McKane  
Supervisory Patent Examiner  
Art Unit 1626

October 22, 2003